2016 TRI National Analysis

Briefing for the OCSPP Immediate Office

Caitlin Briere

November 29, 2017

---------- Notes ----------

Key Messages

- Air releases continue to decline
  - 2006-2016: Air releases decreased by 58% (-829 million pounds)
  - Electric utilities are responsible for the greatest reductions, but almost every sector reduced their air releases
- Showcasing industry's source reduction efforts drives adoption of best practices
  - TRI facilities implemented nearly 5,900 new source reduction activities in 2016
  - Source reduction success stories in the National Analysis highlight recent and actionable opportunities for knowledge transfer
- The National Analysis increases transparency and public understanding of TRI information
  - Explanation, illustration, and interpretation of TRI information improve understanding of environmental data
  - Interactive, embedded tools, such as data visualization, in the National Analysis support access to and exploration of TRI data

---------- Notes ----------
Potential messages to highlight in the press release

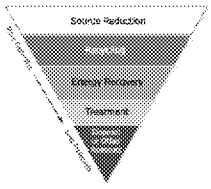
EPA 2016 TRI National Analysis Summary

- Total production-related waste increased 2% from 2015-2016
  - All waste management activities increased by 2% - 3%
  - Of 27.8 billion pounds of waste managed, 24.3 billion pounds (87%) were not released due to preferred waste management practices like recycling
- Total disposal or other releases increased 1% from 2015-2016
  - Land disposal increased – Metal mines
  - Air releases decreased – Electric utilities and paper manufacturing
  - 2016: Of the 3.1 billion lb released on-site, 2.3 billion lb (74%) were released to land, 610 million lb (20%) to air, and 191 million lb (6%) to water
- New this year:
  - Explore off-site transfers via an embedded QlikSense dashboard
  - Demonstrate the synergy of TRI and CDR (2016 now available) for TSCA chemicals
  - New presentation of hazard and risk information via EasyRSEI interactive dashboard
  - Expanded tribal information
  - Highlight TRI as an international model
  - Analysis of mercury release trend at electric utilities
  - Highlight the pollution prevention achievements pharmaceutical sector

---------- Notes ----------

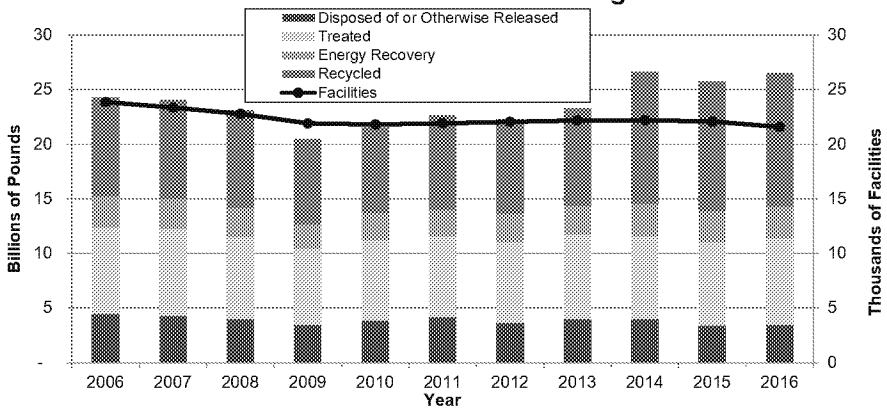
Releases increase driven by metal mines. If metal mining is excluded, releases decreased by 9% (187 million lb)
Production-related waste driven by a increases from paper manufacturing (+520 million lb), metal mining (+264 million lb), primary metals (+62 million lb), transportation equipment (+46 million lb), and others. Sectors with decreasing PRW since 2015 include chemical manufacturing and electric utilities.

Trends in Waste Managed



- 2016: Production-related waste managed was 27.8 billion lb
- 2006-2016: Waste managed increased by 9% (2.2 billion lb)
- 2015-2016: Waste managed increased by 2% (589 million lb)
  - Recycling, Energy Recovery, Treatment, Releases all increased 2-3%
- For 2016, 21,629 facilities filed 79,477 forms, a 2% decrease in facilities and 3% decrease in forms from 2015
- For 2016, 11% of facilities (2,306 facilities) reported initiating 5,868 source reduction activities

Production-Related Waste Managed



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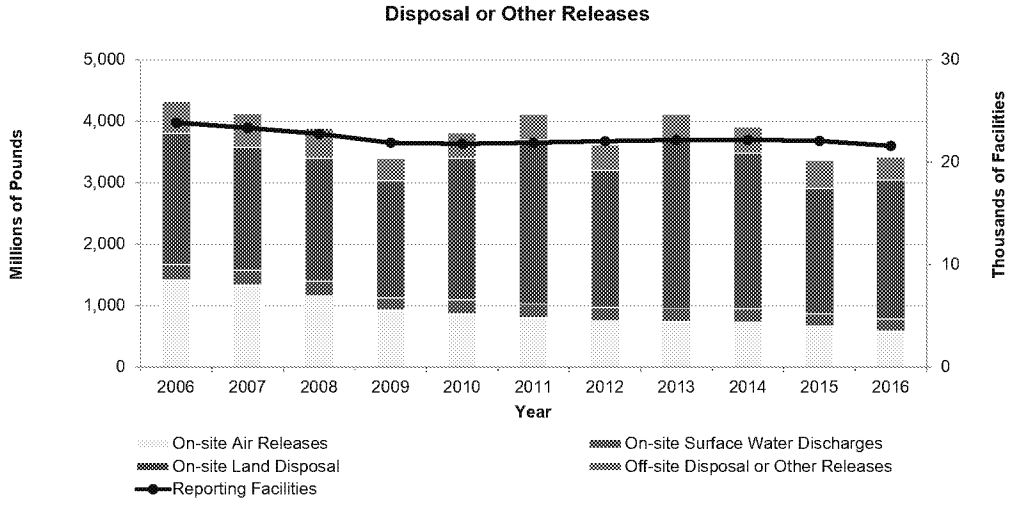
---------- Notes ----------

Increase in PRW not driven by any one sector. Includes increase in on-site recycling (+302 million lb), increase in on-site treatment (+312 million lb), and increase in on-site releases (+164 million lb)

- 91745QMTCN720SO (QUEMETCO INC, INDUSTRY CITY, CA; NAICS 331492, secondary smelting) recycled on-site 221 million lb lead compounds in 2016 and no recycling of lead compounds in 2015 (they did report lead compounds in 2015 but didn't report any recycled on- or off-site).
- 30913FDRLPHIGHW (INTERNATIONAL PAPER, AUGUSTA, GA; NAICS 322130, paperboard mills) treated on-site 564 million lb chlorine dioxide, up from 34,000 lb in 2015.

Trends in Releases

- 2016: Total releases of 3.4 billion pounds
- 2015-2016: Total releases increased by 1% (50 million pounds)
  - Metal mining on-site land disposal increased by 244 million pounds
  - Other releases (excluding metal mining) decreased by 9% (193 million lb)



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Total releases were 3,394 million pounds in 2015 and 3,444 million pounds in 2016

Releases by Industry

Factors other than production play a role in TRI releases (e.g. composition of ore for metal mining, source reduction, control technologies)

Industry	2006-2016 Releases	2006-2016 Production
Manufacturing	Decreased 27%	Increased 2%
Chemical Manufacturing	Decreased 6%	Decreased 12%
Metal Mining	Increased 20%	Decreased 3%
Electric Utilities	Decreased 64%	Decreased 38%
Pharmaceutical Manufacturing	Decreased 56%	Decreased 18%

---------- Data Files ----------
Data Sources:
Manufacturing Production: Bureau of Economic Analysis, Value Added
Chemical Manufacturing: Federal Reserve Board, Industrial Production Index
Metal Mining: USGS Mineral Commodity Summary, Total Production (metric tons) – includes gold, silver, copper, lead, zinc, molybdenum, platinum group elements, beryllium, and titanium mineral concentrates
Electric Utilities: EIA Net Electricity Generation, Net Generation by Energy Source – includes generation from coal, petroleum liquids, and petroleum coke fuel sources
Pharmaceutical Manufacturing: Federal Reserve Board, Industrial Production Index

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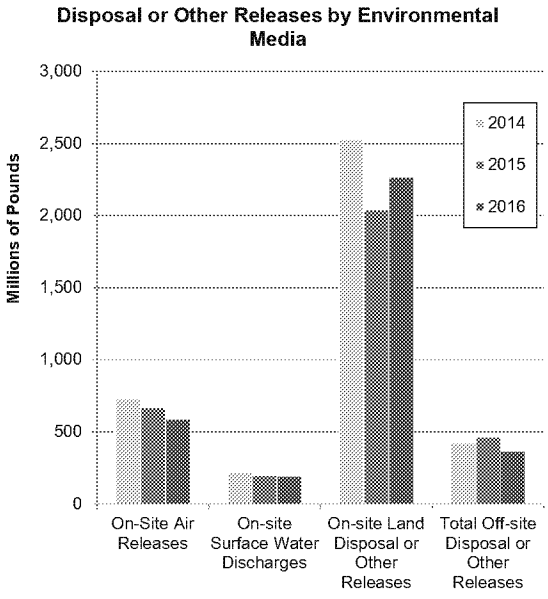
Releases by Environmental Media

Changes from 2014:

- Total on-site releases decreased 12% (433 million lb)
  - Air releases decreased 19% (142 million lb)
  - Surface water discharges decreased 13% (27 million lb)
  - Land disposal decreased 10% (264 million lb)
- Off-site releases decreased 13% (57 million lb)



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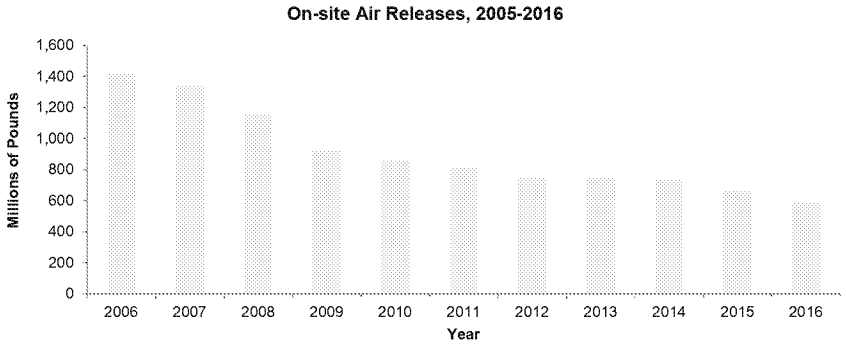
Trends – Air releases

- 2015-2016: Air releases decreased by 11% (77 million lb)
  - Electric utilities air releases decreased by 35% (47 million lb)
  - Primary metals air releases decreased by 25% (8.6 million lb)
  - Paper manufacturing air releases decreased by 7% (8.5 million lb)
- 2006-2016: Air releases decreased by 58% (829 million lb)
- Long-term decline primarily due to:
  - Decreases in HAP emissions such as hydrochloric acid at electric utilities
  - Shift from coal to other fuel sources (starting in 2008)
  - Implementation of CAIR and MATS regulations*
  - Installation of control technologies at coal-fired power plants



*CAIR is the Clean Air Interstate Rule and MATS is the Mercury and Air Toxics Standards

---------- Notes ----------
Primary Metals (NAICS 331) includes iron & steel, smelting, foundries

Persistent Bioaccumulative Toxic Chemicals (PBTs)

From 2015 – 2016:

Lead & Lead Compounds

- Total releases increased 16% (92 million lb)
- Air releases of lead and lead compounds decreased 6% (23,600 lb)

Mercury & Mercury Compounds

- Total releases increased 2% (94,100 lb)
- Air releases decreased 27% (16,700 lb)

Dioxin & Dioxin-like Compounds

- Total releases increased by 25% (17,500 grams)
- Air releases decreased by 2% (20 grams)

---------- Notes ----------

Lead & Lead Compounds increase is driven by the increase in onsite land disposal (up 115 million lb). The increase is primarily driven by releases at two metal mining facilities:

- Red Dog Operations in Kotzebue, Alaska reported a 50% increase from 2015 to 2016 (NAICS 212231, TRIFID 99752RDDGP90MIL) from 213 million lb to 319 million lb. 37% of Pb releases in 2015 and 48% of Pb releases in 2016 were reported by this facility.

- Kennecott Utah Copper Mine Concentrators and Power Plant in Bingham Canyon, Utah reported a 32% increase from 2015 to 2016 (NAICS 212234, TRIFID 84006KNNCT12300) from 121 million lb to 160 million lb. 21% of Pb releases in 2015 and 24% of Pb releases in 2016 were reported by this facility.

Dioxin increase is driven by the increase in onsite land disposal, primarily due to increases at two facilities:

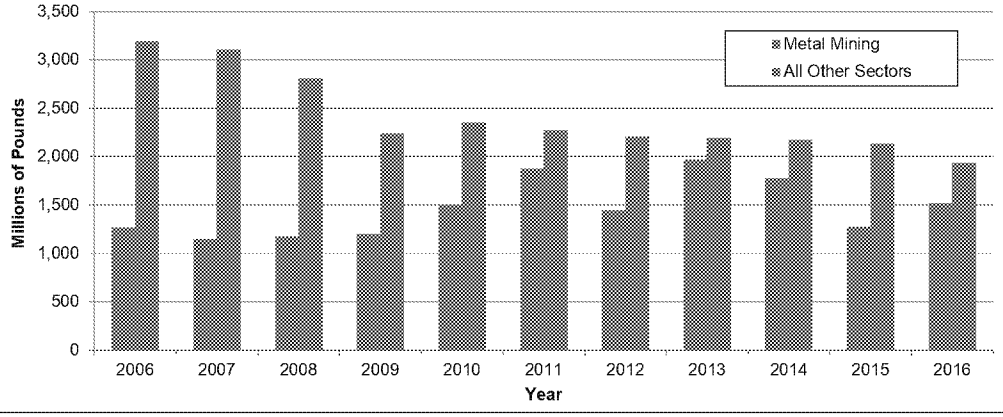
- US Magnesium LLC in Grantsville, Utah reported a 43% increase (increased by 8,338 grams) from 2015 to 2016 (NAICS 331410 [non-ferrous metal smelting and refining], TRIFID 84074MXMGNROWLE).

- Wayne Disposal in Bellville, Michigan reported 11,957 grams of dioxin releases in 2016 and did not report for dioxin in 2015 or prior years (NAICS 562211 [hazardous waste treatment and disposal], TRIFID 48111WYNDS49350).

Trends - Metal Mining & Other Industry Sectors

- Releases by metal mining fluctuated from 2006-2016
  - Metal mining comprises more than one-third of all TRI releases
- Other industries show decreased releases from 2006-2016
  - Electric Utilities (NAICS 2211) – Releases decreased 64% (663 million lb)
  - Manufacturing (NAICS 31-33) – Releases decreased 27% (506 million lb)
    - Chemical Manufacturing (NAICS 325) – Releases decreased 6% (30 million lb)

Disposal or Other Releases, 2006-2016: Metal Mining and All Other Industry Sectors



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Facilities with Largest Changes in Total Releases

- Metal Mining:
  - Red Dog (AK - R10)
    - 2016 releases: 756 million pounds
    - **Increase** from 2015: 214 million pounds
    - 50% of all metal mining releases (22% of all releases)
  - Kennecott Utah Copper Mine Concentrators & Power Plant (UT – R8)
    - 2016 releases: 201 million pounds
    - **Increase** from 2015: 37 million pounds
  - Robinson Nevada Mining Co (NV – R9)
    - 2016 releases: 19 million pounds
    - **Decrease** from 2015: 24 million pounds
- All Other Sectors:
  - Clean Earth of North Jersey (NJ – R2)
    - Hazardous Waste Management facility
    - 2016 releases: 1.6 million pounds
    - **Decrease** from 2015: 64 million pounds
  - KMTEX LLC (TX-R6)
    - Chemical Manufacturing facility
    - 2016 releases: 4,567 pounds
    - **Decrease** from 2015: 16 million pounds
  - Horsehead Metal Products LLC (NC – R4)
    - Secondary Smelting facility
    - 2016 releases: 1.3 million pounds
    - **Decrease** from 2015: 7.9 million pounds

---------- Notes ----------
The top 7 increasers are all mines (together those 7 mines increased releases by 308 million lb) and 2 of the top 3 decreasers are mines (those 2 mines together decreased releases by 43 million lb)

RED DOG (Zinc mine) – Pb Compounds disposed onsite (in Other Surface Impoundments and Other Disposal) increased by 107 million lb. The facility included this comment on their TRI form for Pb Compounds: "Total releases of Pb compounds are dependent on ore grade, among other variables. Natural variation accounts for the difference in released Pb compounds from year to year. Pb is naturally occurring in ore."
Zn compounds also increased by >100 million lb and the facility included the following comment: "This is a Zinc mine. Zn is naturally occurring in ore."

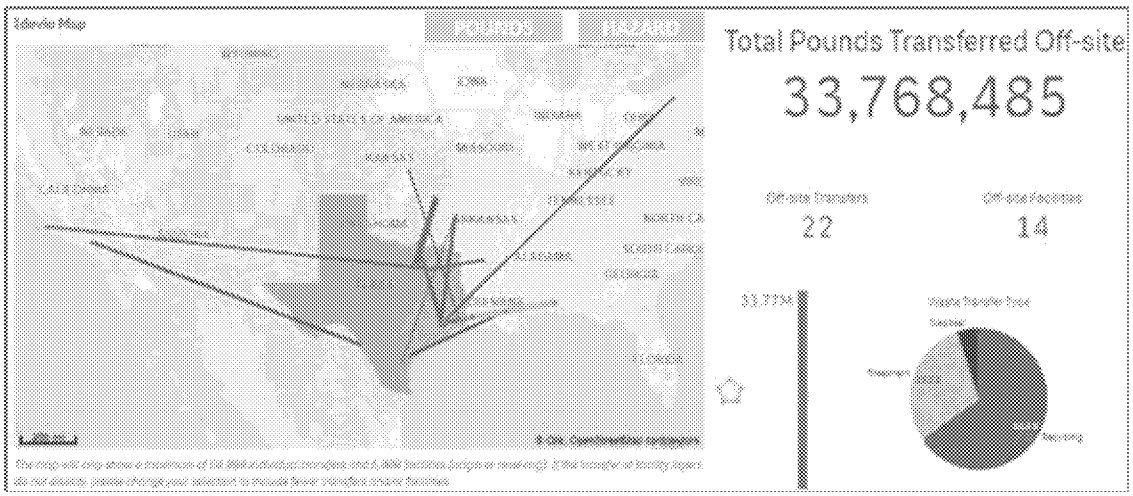
CLEAN EARTH OF NORTH JERSEY, Kearny, NJ (TRIFID 07032SWWST115JA): In 2015, releases of Pb Compounds, Ba Compounds, Cu Compounds, and Manganese Compounds were all much higher than in 2016 or in any prior year (e.g., total releases in 2015 were 66 million lb vs. other years are <2 million lb).

KMTEX LLC in Port Arthur, TX (TRIFD 77641KMCNC2450S): Releases for 2013-2015 were primarily been methanol with >15 million lb/year transferred off-site for Underground Injection (Class I). No off-site transfer in 2016 and only 80 lb of releases. Section 9.1 for 2016: "We ceased production of bio-diesel and just shipped out the methanol that we had left."

HORSEHEAD METAL PRODUCTS LLC in Mooresboro, NC (TRIFID 2811WHRSHD484HI): Zn compounds shipped off-site went from 9 million lb in 2015 to 1.2 million lb in 2016 (mainly to a RCRA C landfill). No explanation was provided although 2014 quantities were similar to 2016, so 2015 appears to be the anomaly.

EPA New Feature - QlikSense Transfers

- New: Embedded Qlik frame for TRI transfers
  - In the Waste Management section
  - Allows users to view the transfers for any chemical or sector
  - Promotes user interactivity in exploring TRI data



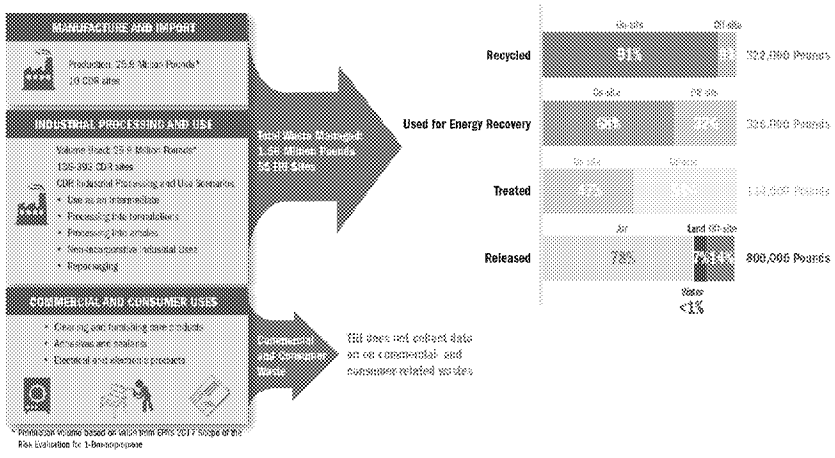
---------- Notes ----------

Explain what QlikSense is – it's a data visualization platform; it was selected to be the Agency's official data viz platform a couple of years ago

New Analysis - TRI and TSCA

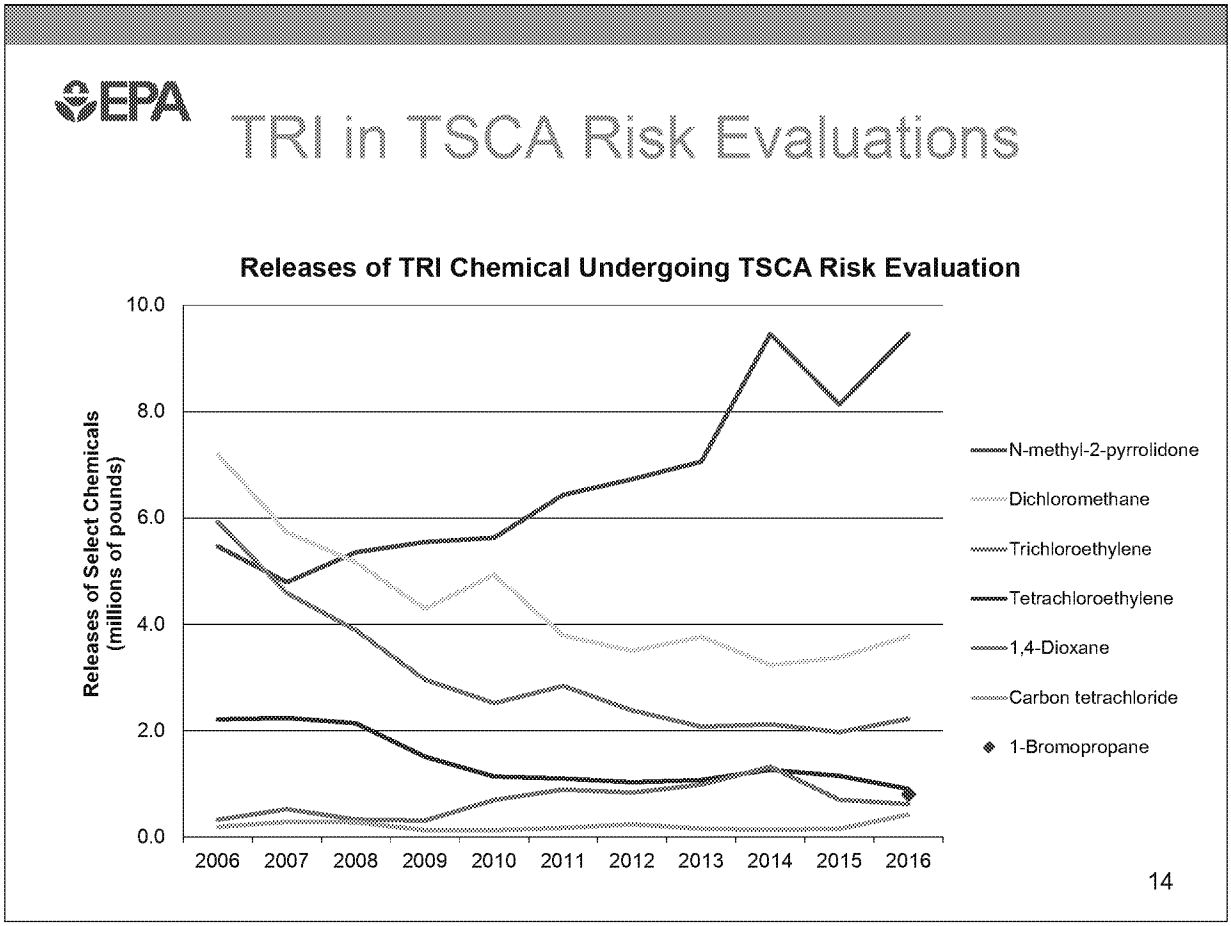
- Information on TSCA workplan chemicals covered by TRI
- CDR data (2015 data now available) complement TRI data
- Illustrates complementary CDR and TRI data for 1-bromopropane (a TSCA work plan chemical)

CDR and TRI Information for 1-Bromopropane



---------- Notes ----------

CDR terminology – facilities can check off uses for the chemical



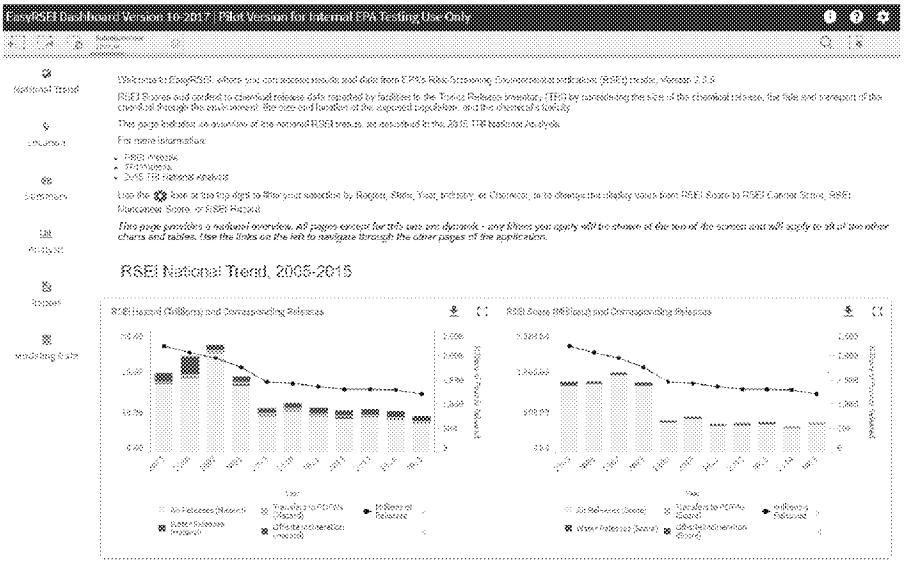
This trend graph exemplifies how useful TRI data can be in the TSCA risk evaluations…

NMP is the least toxic solvent on this list; it's likely being substituted for the other solvents (that's why it's increasing while the others are decreasing) – we heard from industry in October that it's being substituted for the other chemicals on the list

RD: THIS SLIDE WAS ADDED FROM STEVE'S PPT
QA file here: K:\TRI.keenan.lex\National Analysis\Briefing\Data Analysis
File name: TSCA Chemical Trends
There is a probably a better place to put this file, but I wasn't sure where.
Please note that n-methyl-2-pyrrolidoneconcentrations appear slightly lower than what we included in Steve's ppt (check out 2014).
I used net releases for this (Tot_OnOff_Rel_Net) for all industries from the Access database.
I do see that I noted for Steve's ppt that we used on- and off-site releases from "8.1 Quantity Released On- and Off-site" (not the release section [5] of the form). Could that be why?

EPA New Feature – RSEI Dashboard

- New: Access the RSEI Hazard and Score figures via the new RSEI Dashboard
  - Provides ability to drill down into information presented in the graphs



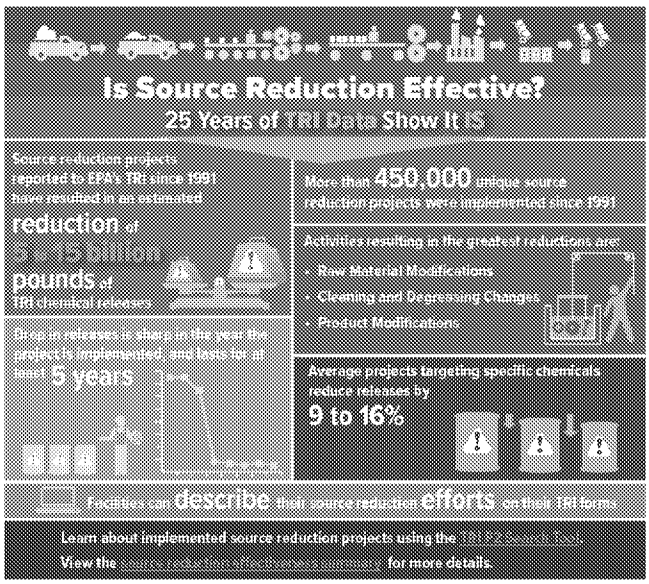
---------- Notes ----------

Same RSEI information in past National Analyses; just a new way to access it

2015 – draft dashboards created with last year's data; don't expect the overall trend to change once 2016 is included

EPA New Infographic on Source Reduction

- TRI source reduction impacts quantified
  - Based on an analysis that used a statistical method ("Differences-in-Differences") to account for confounding factors

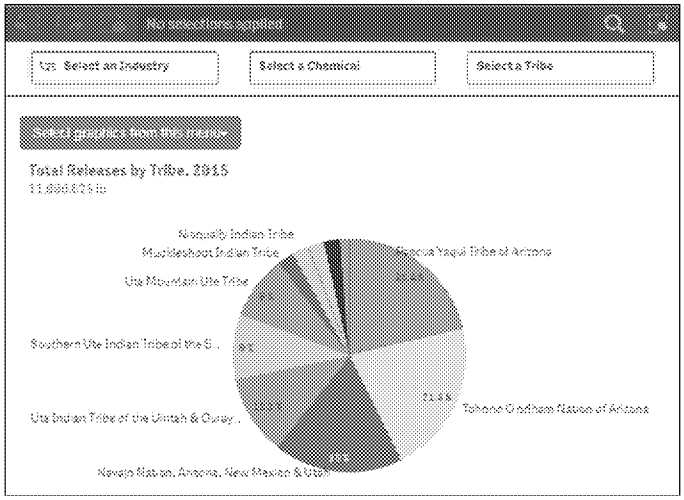


---------- Notes ----------
New infographic to help data users understand the SR information submitted to us

Widely used statistical method – differences-in-differences approach
- paper published in the Journal of Environmental Science and Technology

New Feature – Expanded Access to Tribal Data

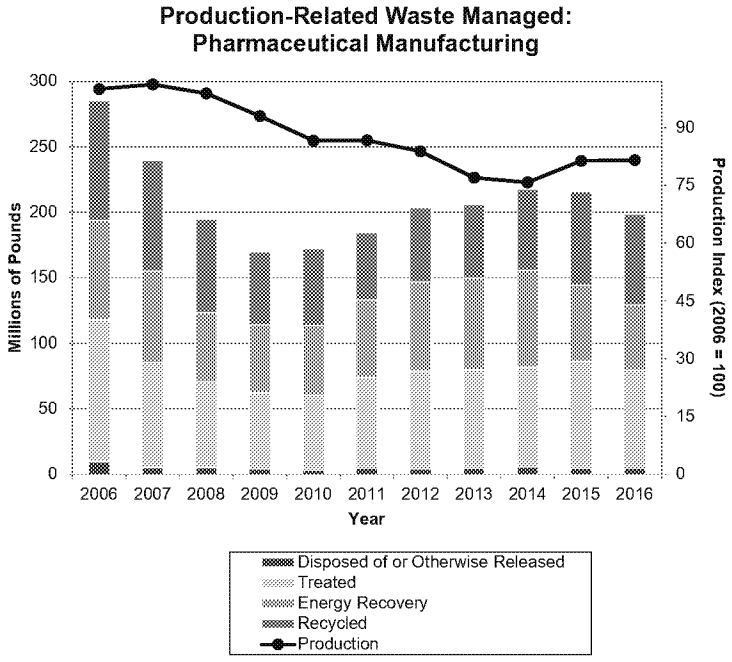
- Replaces static table on releases on tribal lands with QlikSense charts
- Adds link to “TRI for Tribal Communities” webpage and other tribal-focused information



---------- Notes ----------

EPA New Analysis – Pharmaceutical Sector

- Releases have decreased by 56% since 2006
- PRW has decreased by 30% since 2006
- Reductions driven by reduced use of and waste from solvents



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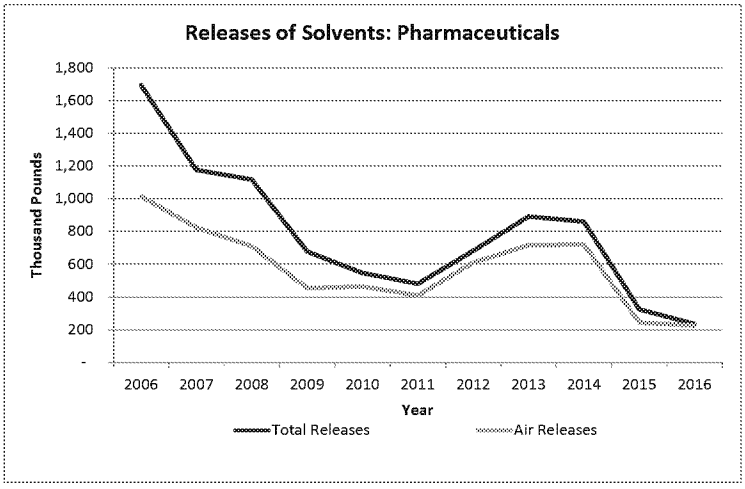
Includes all of NAICS 3254
3254 Pharmaceutical and Medicine Manufacturing
32541 Pharmaceutical and Medicine Manufacturing
325411 Medicinal and Botanical Manufacturing
325412 Pharmaceutical Preparation Manufacturing
325413 In-Vitro Diagnostic Substance Manufacturing
325414 Biological Product (except Diagnostic) Manufacturing
---------- Notes ----------
Added % change in production: Production decreased 18% from 2006 – 2016 based on the Federal Reserve Board Production Index. However, using the Census Bureau's Annual Survey of Manufactures (ASM), shows a 15% increase in value-added over the same time period. For this sector, there are particular difficulties in using an economic indicator as a proxy for production because the prices of pharmaceuticals can fluctuate dramatically both among products and over time. Unfortunately, no other measures of production in the sector are publicly available. This figure uses the FRB Production Index instead of ASM because 1) ASM data is not yet available for 2016; and 2) FRB Production Index is used for other sectors.

EPA New Analysis – Pharmaceutical Sector

- Releases of 20 key solvents have decreased by 86% since 2006
- Dichloromethane is the primary solvent released
- Organic solvents are used in the sector as reaction media and in separation and purification of synthesis products



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Includes all of NAICS 3254 facilities that reported under NAICS 3254 for at least one year
Includes the 20 solvents on the list of TSCA work plan chemicals: ANILINE, BENZENE, 1-BROMOPROPANE, CARBON TETRACHLORIDE, DIBUTYL PHTHALATE, 1,2-DICHLOROBENZENE, ETHYLIDENE DICHLORIDE, 1,2-DICHLOROETHANE, 1,4-DIOXANE, ETHYLBENZENE, HEXACHLORO-1,3-BUTADIENE, DICHLOROMETHANE (DCM), N-METHYL-2-PYRROLIDONE (NMP), TETRACHLOROETHYLENE (Perc), 1,1,2-TRICHLOROETHANE, TRICHLOROETHYLENE (TCE), M-XYLENE, O-XYLENE, P-XYLENE, XYLENE (MIXED ISOMERS)

3254 Pharmaceutical and Medicine Manufacturing
32541 Pharmaceutical and Medicine Manufacturing
325411 Medicinal and Botanical Manufacturing
325412 Pharmaceutical Preparation Manufacturing
325413 In-Vitro Diagnostic Substance Manufacturing
325414 Biological Product (except Diagnostic) Manufacturing
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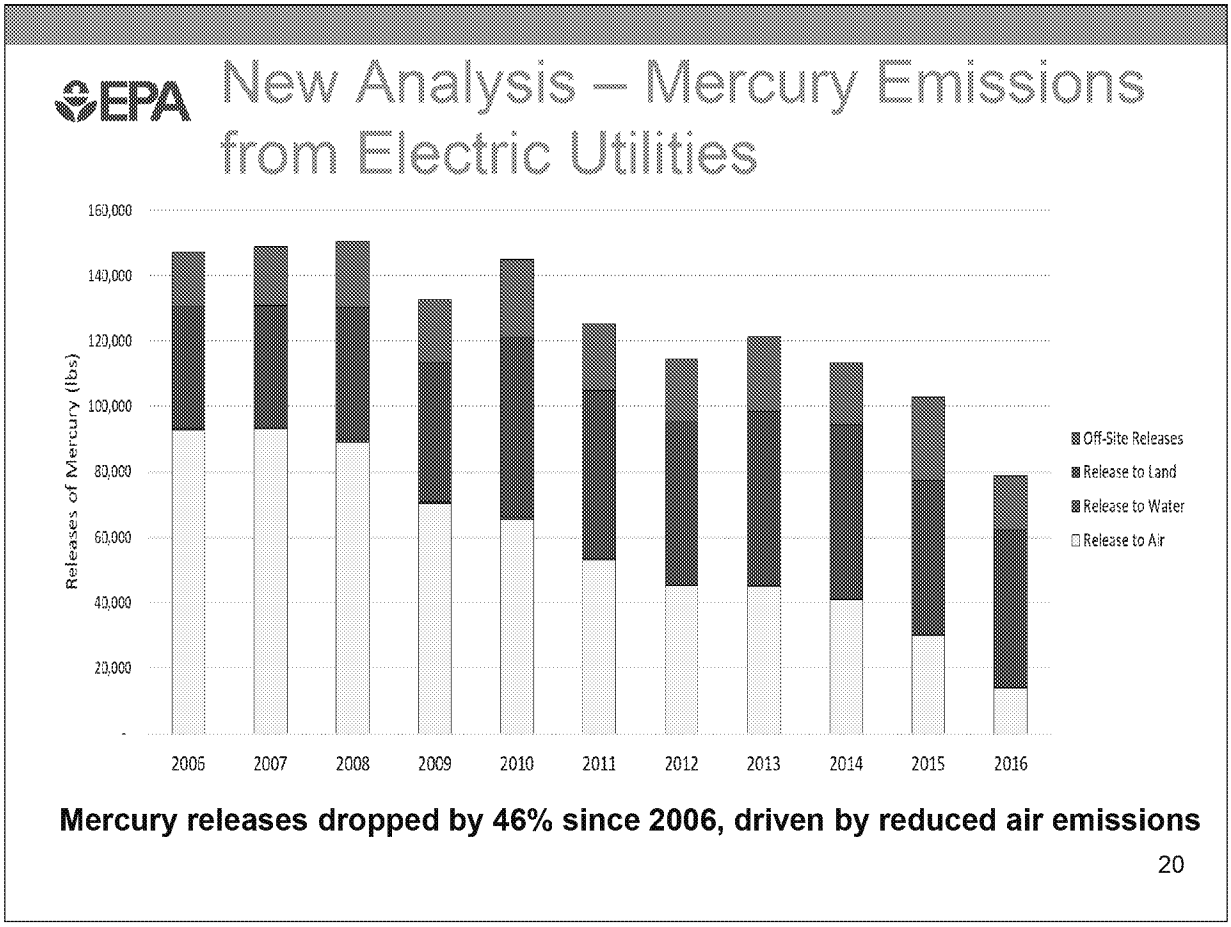
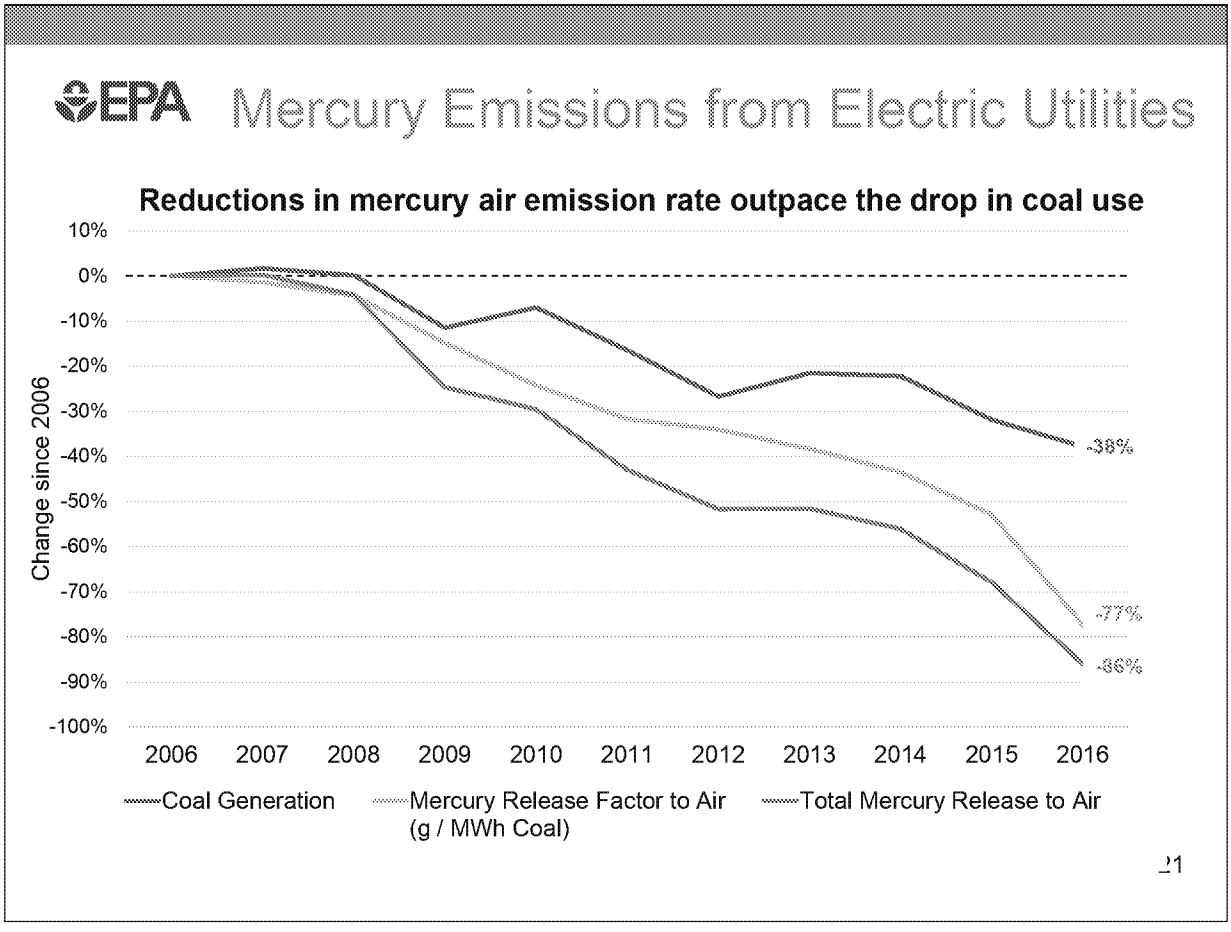


---------- Notes ----------
Coal contains trace amounts of mercury, which is released when the coal is burned by power plants.
EPA's Mercury and Air Toxics Standards limit the amount of mercury and other pollutants that power plants can emit.
Examining the trend in mercury emissions shows that the sector's releases dropped by 46% (68 thousand lb) since 2006, driven by an 85% (79 thousand lb) decrease in mercury air emissions. This drop was offset somewhat by increased releases of mercury to land.



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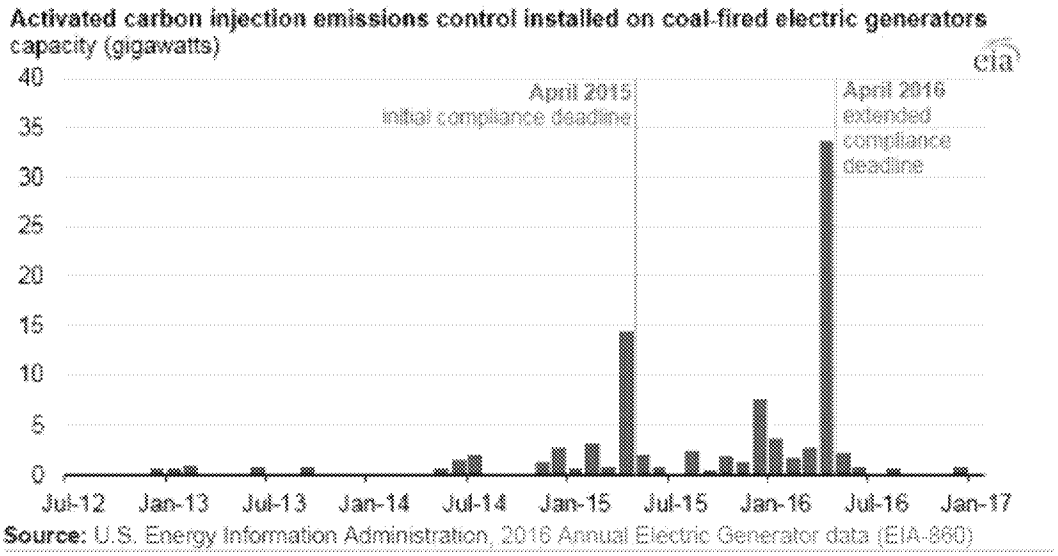
Since 2006, net electricity generation from coal decreased by 38%, while the rate of release of mercury to air per GWh of electricity generated from coal dropped 77%.

New Analysis – Mercury Emissions from Electric Utilities



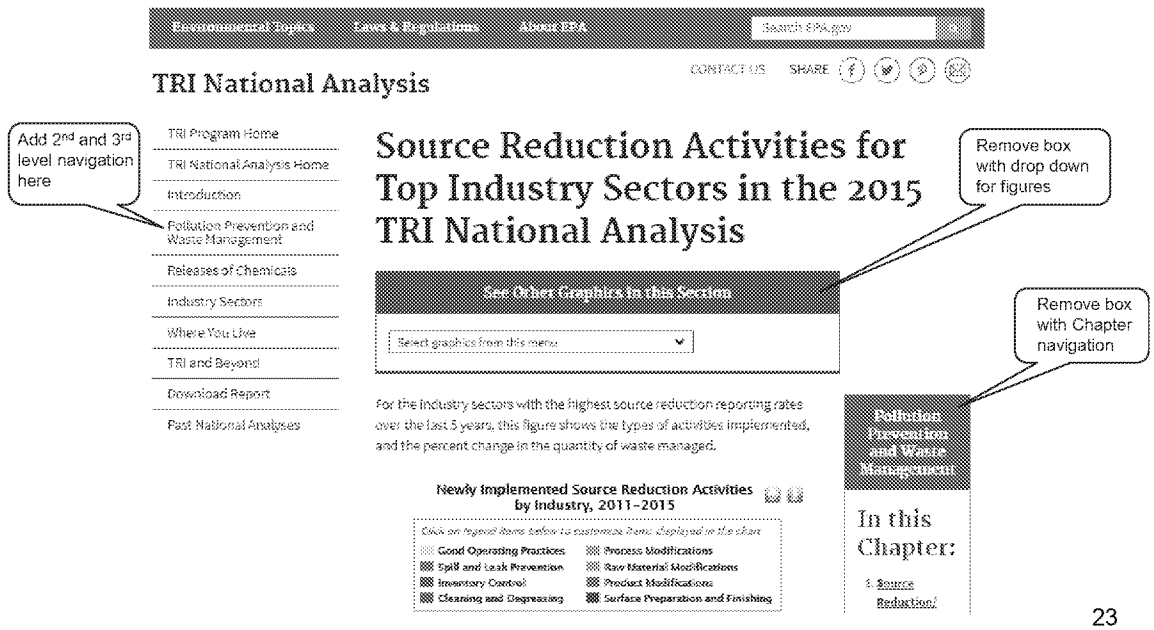
---------- Notes ----------

What's driving the reductions? It appears to be the install of control equipment to meet regulatory deadlines under the Mercury and Air Toxics Standards (MATS).

Coal plants installed controls (activated carbon injection systems) to meet regulatory deadlines

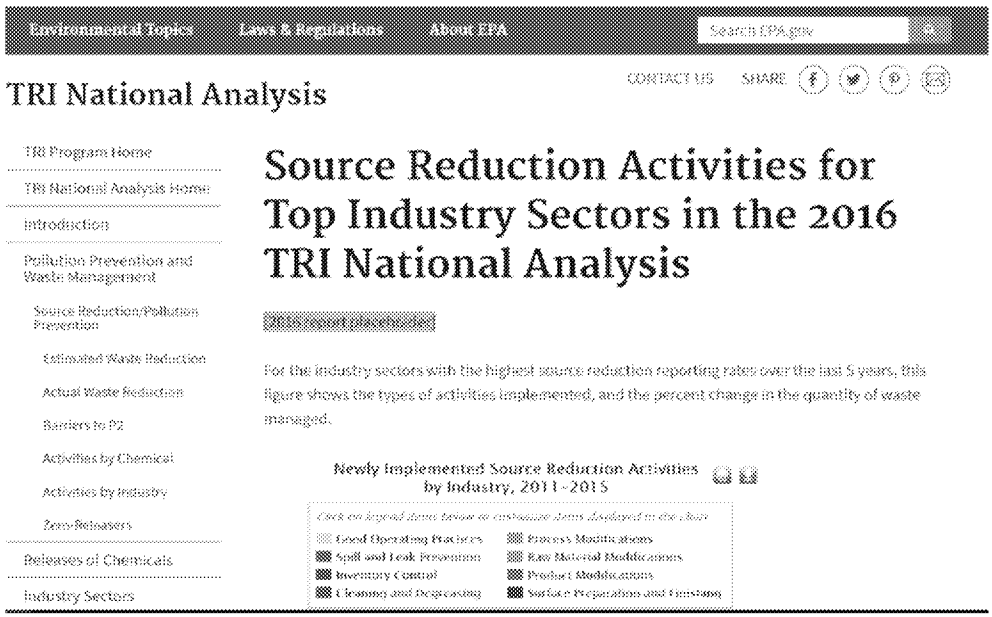
EPA New Feature – Simplified Site Navigation

Current microsite navigation:



---------- Notes ----------
Streamlined navigation
More intuitive for users
Cleaner look

EPA New Feature – Simplified Site Navigation



---------- Notes ----------

Left-hand navigation - More intuitive navigation and easier to view what's in the section

Removing the drop-down menu at the top Opens up the top of the page to view content more readily

Removing right-hand table of contents box Opens up space for wider visual displays

Next Steps

- Prior to National Analysis Publication (mid-January):
  - Management review of web content via printed document
    - TRIPD
    - OPPT
    - OCSPP
  - OCSPP review of microsite design online
- In Conjunction with Publication:
  - 1-2 Days before publication:
    - Letters to facilities and parent companies mentioned in the Analysis
  - Same day as publication:
    - Press release
    - TRI List Serv message
    - Webinar for media (with prior media advisory)
  - Within a week of publication:
    - Public webinar
  - Within two weeks of publication:
    - In-person briefing for Industry and other stakeholders

This is what we normally do; none of these steps are new this year – "here's what we plan to do"

2015 examples of press release, letter to facilities, stats on media articles published in Q1 of 2017

EPA

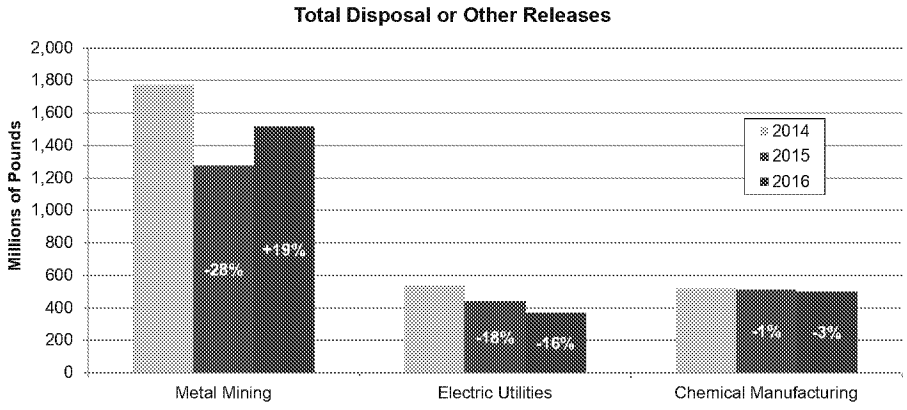
Questions?

---------- Notes ----------

Appendix 1: Total Releases by Industry Sectors

2015 to 2016:

- Metal mines increased by 19% (242 million lb)
- Electric utilities decreased by 16% (72 million lb)
- Chemical manufacturing decreased by 3% (13 million lb)

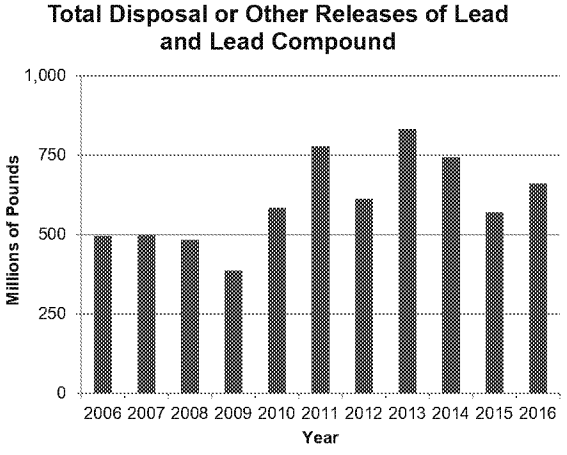


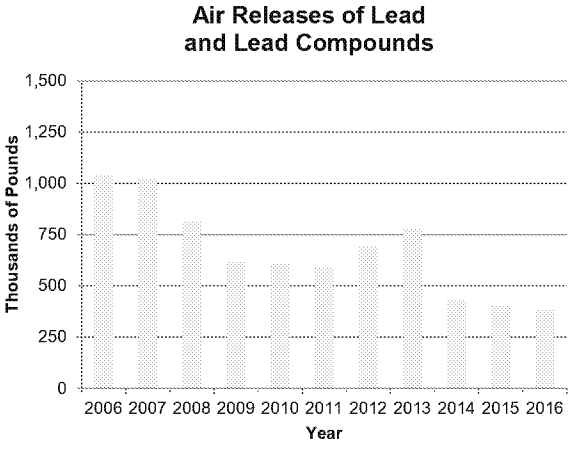
---------- Notes ----------

Appendix 2: Releases of PBTs – Lead and Lead Compounds

Changes from 2015:

- Total releases of Lead and Lead Compounds increased 16% (92 million lb)
- Air releases of Lead and Lead compounds decreased 6% (23,631 lb)





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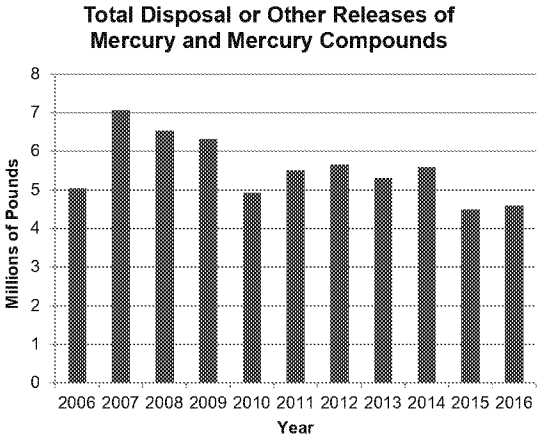
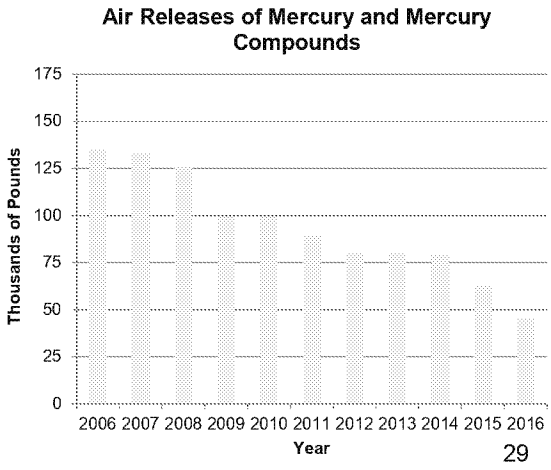
---------- Notes ----------

Appendix 3: Releases of PBTs – Mercury and Mercury Compounds

Changes from 2015:

- Total releases of Mercury and Mercury Compounds increased 2% (94,051 lb)
- Air releases of Mercury and Mercury compounds decreased 27% (16,731 lb)





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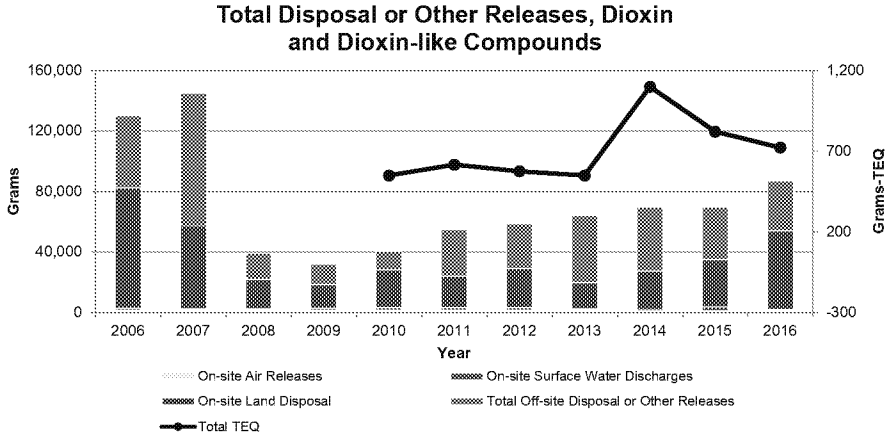
Appendix 4: Releases of PBTs – Dioxins and Dioxin-Like Compounds

- 2015-2016: Dioxin releases increased by 25% (17,500grams)
  - On-site land disposal increased by 66% (20,800 grams)
  - Air releases decreased by 2% (20 grams)
  - Off-site disposal and other releases decreased by 5% (1,800 grams)
- 2010-2016: Grams-TEQ increased less than dioxin grams (32% compared to 114%)
  - Toxic Equivalence (TEQ) is the product of the concentration of an individual dioxin-like compound in an environmental mixture and its corresponding Toxic Equivalence Factor for that compound



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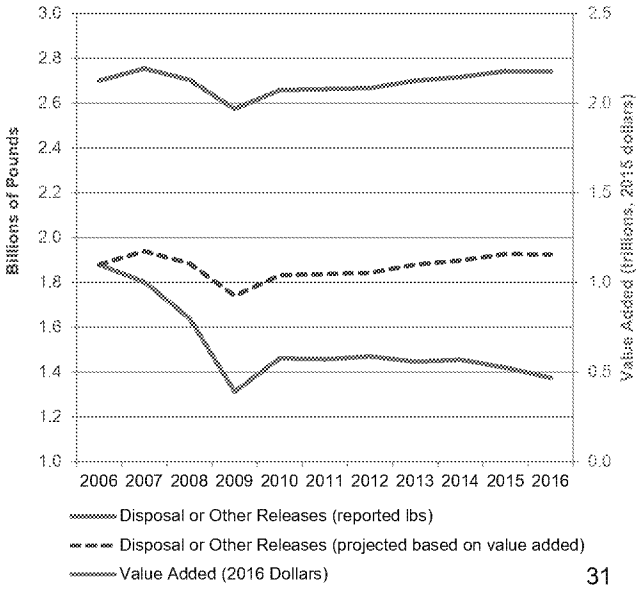
Data revisions in grams (and therefore grams TEQ) from the Primary Metals sector (NAICS 331) since 2015 TRI NA. TEQ trend looks very different –

Revisions by 6676WCSTML48VER (Custom Alloy) are the primary source of the difference between the 2006-2016 trend and the one from the 2015 TRI NA.

Appendix 5: Manufacturing

- Disposal or other releases decreased 27% since 2006.
- Value added increased 2% since 2006.
- Dotted line shows projected releases if releases per $ value added were constant since 2006 (i.e., releases expected based only on production changes)
  - Difference between solid and dotted lines suggests factors other than the economy play a role in reducing TRI releases
- Possible factors: source reduction; shift to other management methods; shift to non-TRI chemicals; outsourcing outside the U.S.; raw material changes.

Disposal or Other Releases and Value Added by the Manufacturing Sector (NAICS 31-33)



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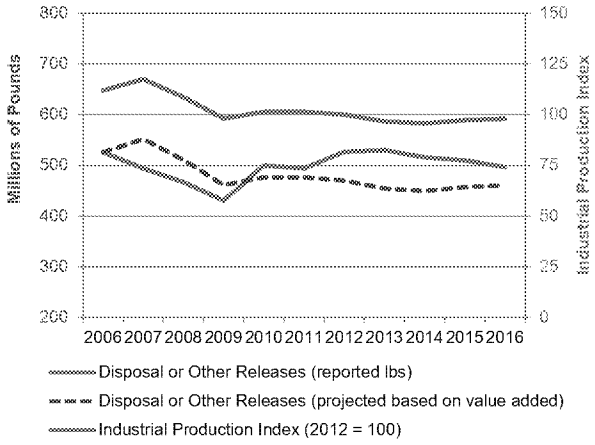
Appendix 6: Chemical Manufacturing

- Disposal or other releases decreased 6% since 2006
- Industrial production index decreased 12% since 2006
- Dotted line shows projected releases if releases per unit of production were constant since 2006 (i.e., releases expected based only on production changes)
  - Difference between solid and dotted lines suggests factors other than the economy play a role in reducing TRI releases

Disposal or Other Releases and Industrial Production by the Chemicals Manufacturing Sector (NAICS 325)



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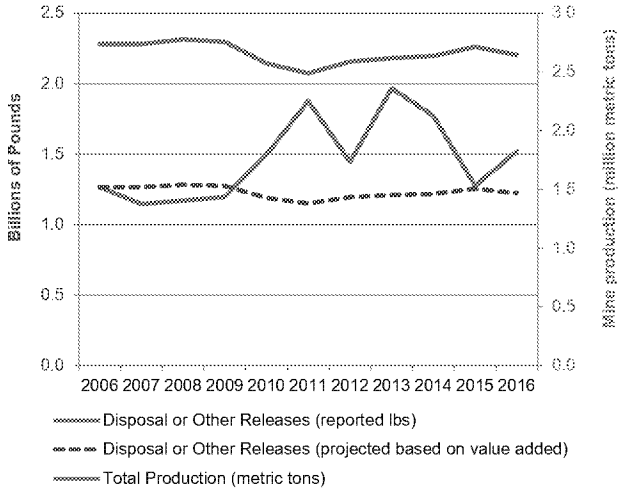
Appendix 7: Metal Mining

- Disposal or other releases increased 20% since 2006
- Mine production has decreased 3% since 2006
- Dotted line shows projected releases if releases per ton of mine production were constant since 2006 (i.e., releases expected based only on production changes)
  - Releases fluctuate, especially in recent years
  - Difference between the dotted and solid lines after 2009 indicates factors other than production drove the increase in releases (e.g., changes in composition of ore and waste rock)

Disposal or Other Releases and Industrial Production by the Metal Mining Sector (NAICS 2122)



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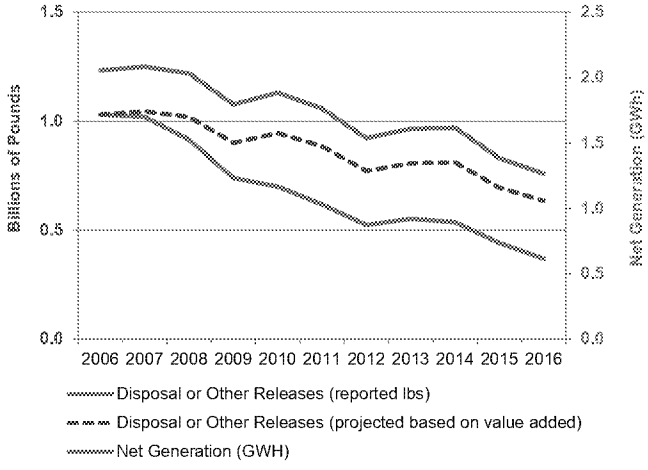
Appendix 8: Electric Utilities

- Disposal or other releases decreased 64% since 2006
- Net generation decreased 38% since 2006
- Dotted line shows projected releases if releases per GWh were constant since 2006 (i.e., releases expected based only on production changes)
  - The difference between the solid and dotted lines suggests factors other than the production played an increasing role in reducing TRI releases

Disposal or Other Releases and Electricity Generation by Electric Utilities (NAICS 2211)



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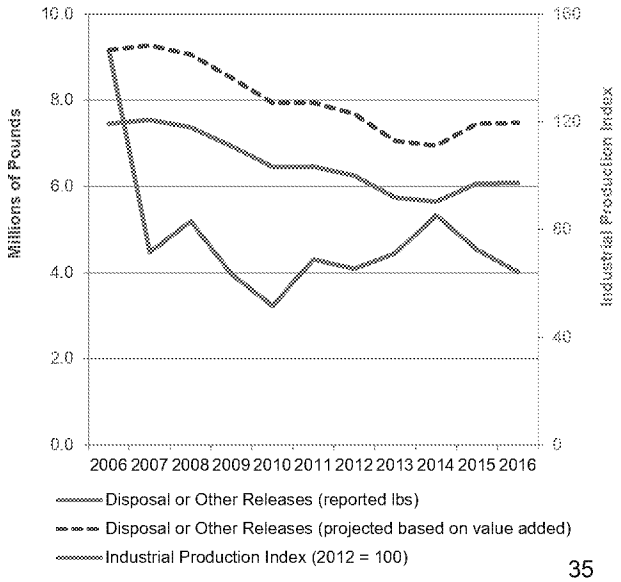
Appendix 9: Pharmaceutical Manufacturing

- Disposal or other releases decreased 56% since 2006
- Industrial production index decreased 18% since 2006
- Dotted line shows projected releases if releases per unit of production were constant since 2006 (i.e., releases expected based only on production changes)
  - The difference between the solid and dotted lines suggests factors other than the production played an increasing role in reducing TRI releases

Disposal or Other Releases and Industrial Production by the Pharmaceutical Manufacturing Sector (NAICS 3254)



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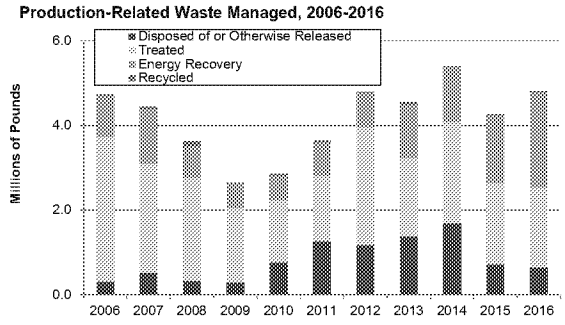
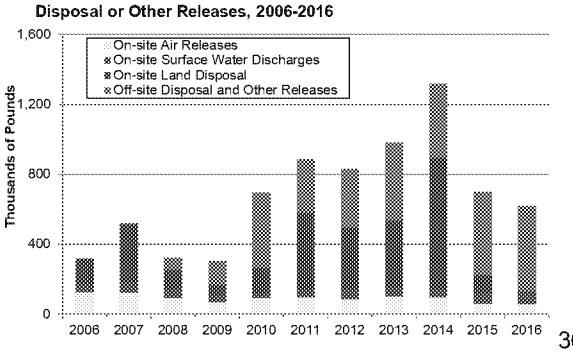
2006 releases are substantially greater than 2005 or subsequent year releases largely due to releases of 3,416,000 lb of methanol via underground injection by a Pfizer facility in Holland, MI which subsequently closed. 2008 was its last year of TRI reporting.

EPA Appendix 10: TSCA Priority Chemicals

1,4 Dioxane

- Number of facilities has increased in recent years. Increase in releases is largely associated with NAICS 562 (Hazardous Waste), though there was a substantial decrease from 2014 to 2015.
- Also increases in NAICS 325612 (Polish and Other Sanitation Good Manufacturing).
- Almost 75% of releases in 2016 from one facility in NAICS 325110 (Petrochemical Manufacturing).





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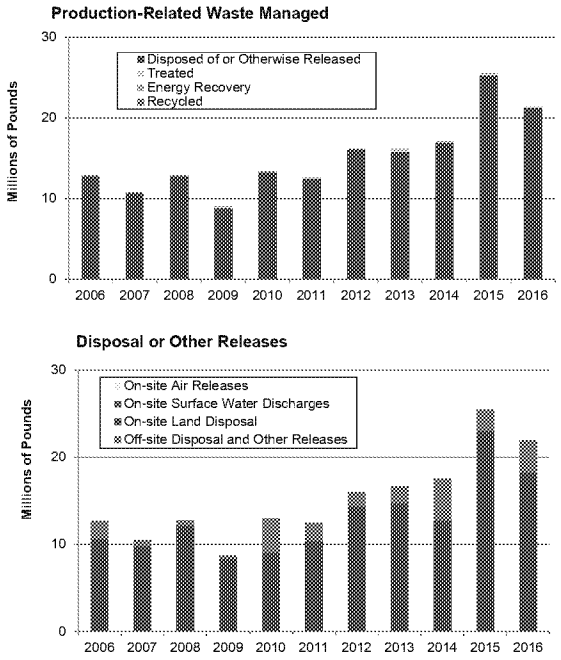
80% of releases in 2016 were reported from the Huntsman International LLC facility in Houston, Texas: TRIFID 77012XDNCR101CO.

This facility began reporting in 2009. Releases have been increasing since 2011 (58% increase from 2011 to 2016).

Appendix 10: TSCA Priority Chemicals

Asbestos (friable)

- Consistent number of facilities over time. Most releases were reported from facilities in NAICS 562 (Waste Management).
- Almost half of releases in 2016 from one hazardous waste facility (all land releases).



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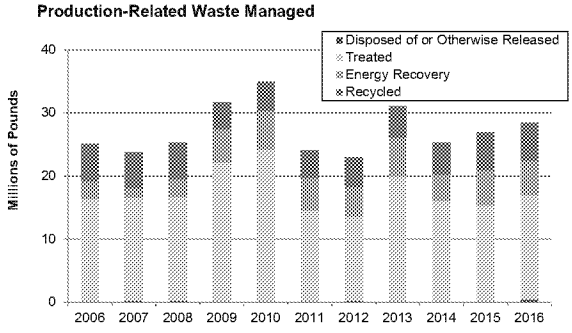
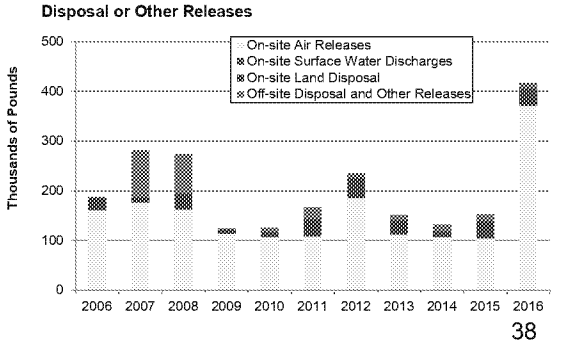
Appendix 10: TSCA Priority Chemicals

Carbon Tetrachloride

- Consistent number of facilities over time.
- Most release and other waste management quantities were reported by facilities throughout sub-sectors comprising NAICS 325 (Chemicals).





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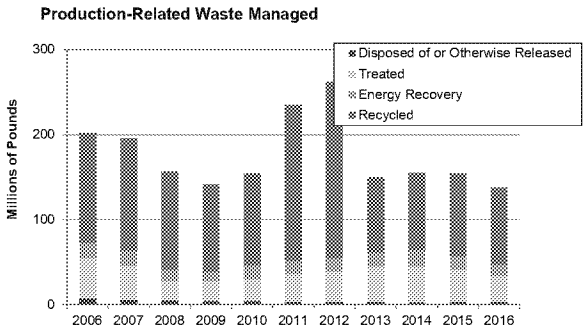
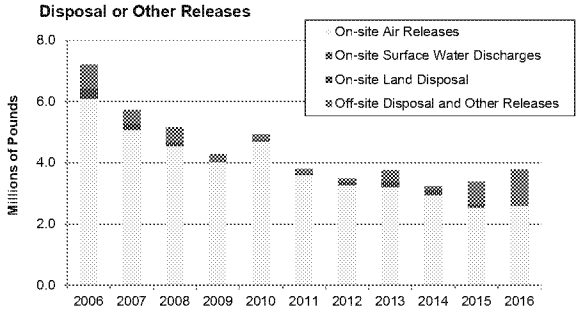
Approximately 75% of air releases in 2016 were reported from the Dover Chemical Corp facility located in Dover, OH; TRIFID 44622DVRCHWESTF; and NAICS: 325998 "All Other Miscellaneous Chemical Product and Preparation Manufacturing". In 2016, this facility reported air releases of 276,275 pounds. From 2006 to 2015, this facility's air releases were consistently reported below 10,000 pounds, and often below 5,000 lbs.

Appendix 10: TSCA Priority Chemicals

Dichloromethane

- Decreases in release and other waste management quantities follows overall decrease in facilities from 2006 (391) to 2016 (270). Released primarily from facilities in sub-sectors within NAICS 325 (Chemicals).
- A TRI P2 Spotlight highlights decreasing releases and includes an example of a facility that replaced dichloromethane (DCM) degreasing with a closed-loop vacuum degreasing unit to clean machine parts. Instead of DCM, the new unit uses non-DCM solvents (hydrocarbons).





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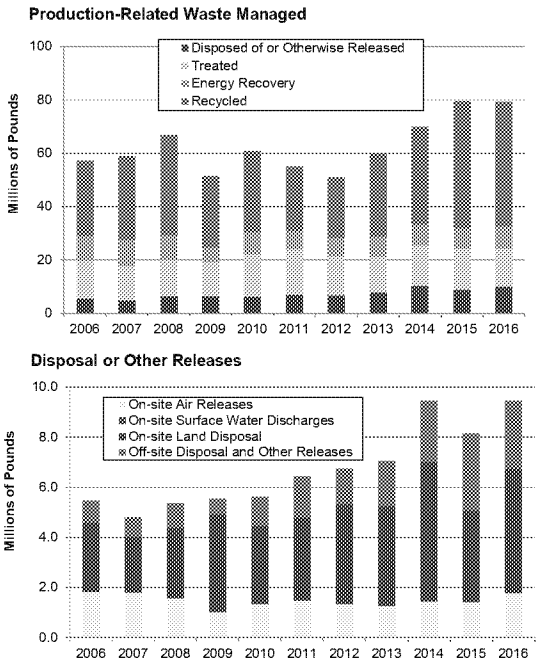
Appendix 10: TSCA Priority Chemicals

N-Methyl-2-pyrrolidone

- Decrease in facilities, but increase in releases.
- Increase is largely from facilities in NAICS 562 (Hazardous Waste) and NAICS 325 (Chemicals), particularly NAICS 325211 (Plastics Material and Resin Manufacturing).



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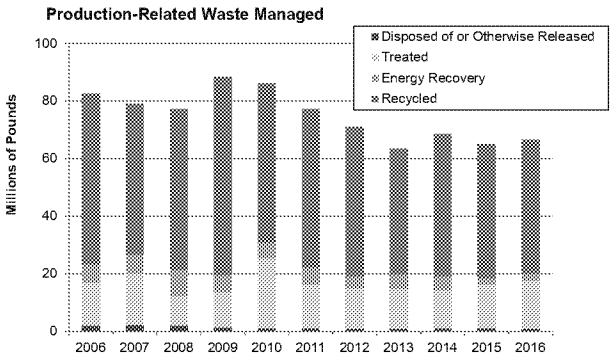
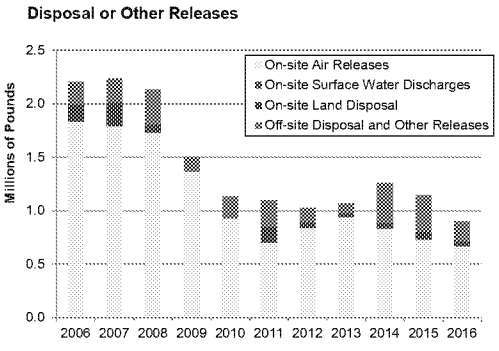
EPA Appendix 10: TSCA Priority Chemicals

Tetrachloroethylene

- Decrease in facilities, waste, and releases.
- Decrease in releases primarily from facilities in NAICS 331 (Primary Metals), 332 (Fabricated Metals), and 333 (Machinery).





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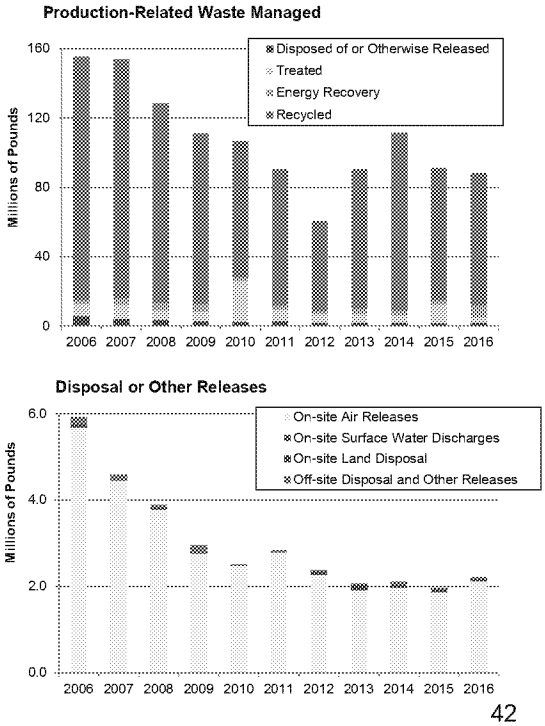
Appendix 10: TSCA Priority Chemicals

Trichloroethylene

- Significant decrease in the number of facilities reporting from 2006 (363) to 2016 (164).
- Decrease in releases mostly from facilities in NAICS 331 (Primary Metals), NAICS 332 (Fabricated Metals), and NAICS 336 (Transportation Equipment).
- A TRI P2 Spotlight highlights decreasing trichloroethylene (TCE) waste in the fabricated metal products sector, and includes an example of a facility that replaced TCE degreasing with aqueous cleaning.
- In 2016, many of the top facilities by releases were in NAICS 331 (Primary Metals), 332 (fabricated metal, or NAICS 326 (Plastics and Rubber).



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